

REMARKS

Claims 1-16 and 24-30 are all the claims pending in the application. The abstract stands objected to. Claims 1-16 stand rejected on prior art grounds. Claims 4-6 and 12-13 stand rejected upon informalities. Claims 17-23 are cancelled herein without prejudice or disclaimer. Claims 24-30 are added herein. Claims 1, 4-6, 8-10, 12-14, and 16 are amended herein. Applicants respectfully traverse the rejections based on the following discussion.

I. The Objection to the Abstract

The abstract stands objected to because it relates to non-elected matter. Accordingly, the Applicants have amended the abstract directed to the structure that is the subject of the elected claims. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this objection.

II. The 35 U.S.C. §112, Second Paragraph, Rejection

Claims 4-6 and 12-13 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Accordingly, the Applicants have amended claims 4-6 and 12-13 to more clearly define the claimed subject matter and in accordance with the suggestions in the Office Action, thereby particularly pointing out and distinctly claiming the subject matter regarded as the invention. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. The Prior Art Rejections

Claims 1-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wu, et al. (U.S. Publication No. 2004/0195628) hereinafter referred to as "Wu", in view of McCaldin, et al. (U.S. Patent No. 3,328,210), hereinafter referred to as "McCaldin". Applicants respectfully traverse these rejections based on the following discussion.

Wu teaches a method of forming a FINFET CMOS device structure featuring an N channel device and a P channel device formed in the same SOI layer. The method features formation of two parallel SOI fin type structures, followed by gate insulator growth on the sides of the SOI fin type structures, and definition of a conductive gate structure formed traversing the SOI fin type structures while interfacing the gate insulator layer. A doped insulator layer of a first conductivity type is formed on the exposed top surfaces of a first SOI fin type shape, while a second doped insulator layer of a second conductivity type is formed on the exposed top surfaces of the second SOI fin type shape. An anneal procedure results creation of a source/drain region of a first conductivity type in portions of the first SOI fin type shape underlying the first doped insulator layer, and creation of a source/drain region of a second conductivity type in portions of the second SOI fin type shape underlying the second doped insulator layer. Selective deposition of tungsten on exposed top surface of the source/drain regions is then employed to decrease source/drain resistance.

McCaldin teaches a process for treating insulation components of semiconductor devices to control or alter the properties of the insulation components as well as the material adjacent to the treated insulation components, whereby the treatment results in the distribution of a permanently induced space charge in the treated layer.

However, the claimed invention, as provided in amended independent claims 1 and 9 contain features, which are patentably distinguishable from the prior art references of record. Specifically, claims 1 and 9 provide, in part, "a gate oxide layer adjacent to said gate region, wherein said gate oxide layer comprises an alkali metal ion implanted at a dosage calculated based on threshold voltage test data provided by a post silicide electrical test conducted on said FET (CMOS device)." McCaldin introduces the ions into its gate oxide directly before the FET is complete. This is an important distinction between McCaldin and the Applicants' claimed invention, which provides implanting the ions after a silicide probe test occurs. This would not be possible in McCaldin and certainly not obvious, since McCaldin requires "bombardment" of the gate oxide with the ions before the device is completed, and hence no information pertaining to the threshold voltage, V_t , is possible in selecting the ion implantation dosage in McCaldin.

Insofar as references may be combined to teach a particular invention, and the proposed combination of Wu with McCaldin, case law establishes that, before any prior-art references may be validly combined for use in a prior-art 35 U.S.C. §103(a) rejection, the individual references themselves or corresponding prior art must suggest that they be combined.

For example, in In re Sernaker, 217 USPQ 1, 6 (C.A.F.C. 1983), the court stated: "[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings." Furthermore, the court in Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 USPQ 2d 1434 (C.A.F.C. 1988), stated, "[w]here prior-art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the

hindsight gleaned from the invention itself. . . . Something in the prior art must suggest the desirability and thus the obviousness of making the combination."

In the present application, the reason given to support the proposed combination is improper, and is not sufficient to selectively and gratuitously substitute parts of one reference for a part of another reference in order to try to meet, but failing nonetheless, the Applicants' novel claimed invention. Furthermore, the claimed invention, as amended, meets the above-cited tests for obviousness by including embodiments such as a gate oxide layer adjacent to said gate region, wherein said gate oxide layer comprises an alkali metal ion implanted at a dosage calculated based on threshold voltage test data provided by a post silicide electrical test conducted on said FET (CMOS device). As such, all of the claims of this application are, therefore, clearly in condition for allowance, and it is respectfully requested that the Examiner pass these claims to allowance and issue.

As declared by the Federal Circuit:

In proceedings before the U.S. Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fritch, 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992) citing In re Fine, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1988).

Here, the Examiner has not met the burden of establishing a prima facie case of obviousness. It is clear that, not only does Wu fail to disclose all of the elements of the claims of the present invention, particularly, the ion implantation occurring after a post silicide test, as discussed above, but also, if combined with McCaldin, fails to disclose these elements as well. The unique elements of the claimed invention are clearly an advance over the prior art.

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The Federal Circuit also went on to state:

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. . . . Here the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Fritch at 1784-85, citing In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Here, there is no suggestion that Wu, alone or in combination with McCaldin teaches a structure containing all of the limitations of the claimed invention. Consequently, there is absent the "suggestion" or "objective teaching" that would have to be made before there could be established the legally requisite "prima facie case of obviousness."

In view of the foregoing, the Applicants respectfully submit that the cited prior art references, Wu and McCaldin, do not teach or suggest the features defined by amended independent claims 1 and 9 and as such, claims 1 and 9 are patentable over Wu alone or in combination with McCaldin. Furthermore, dependent claims 2-8, 10-16, and 24-30 are similarly patentable over Wu, alone or in combination with McCaldin, not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features of the invention they define. Thus, the Applicants respectfully request that these rejections be reconsidered and withdrawn.

Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

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IV. Formal Matters and Conclusion


With respect to the objections/rejections to the abstract and claims, the abstract and claims have been amended, above, to overcome these objections/rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the objections/rejections to the abstract and claims.

In view of the foregoing, Applicants submit that claims 1-16 and 24-30, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

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